

CLAIMS

- 1 1. A method of sensing spark in an igniter in a gas turbine,
2 engine, comprising:
 - 3 a) maintaining a sensor adjacent a surface of the
4 igniter;
 - 5 b) using the sensor to detect spark; and
 - 6 c) issuing a signal when spark is detected.
- 1 2. Method according to claim 1, wherein said surface reaches
2 a temperature of 175 F or greater during normal operation of the
3 engine.
- 1 3. Method according to claim 2, wherein the sensor is in
2 contact with said surface.
- 1 4. Method according to claim 1, wherein said surface is
2 electrically conductive and connected to a system ground.
- 1 5. Method according to claim 1, wherein no electrical current
2 passing through the igniter enters the sensor.
- 1 6. Method according to claim 1, wherein the gas turbine
2 engine powers an aircraft, and the signal is issued to a pilot
3 station in the aircraft.

1 7. Method according to claim 1, wherein
2 1) a cable runs from an exciter to the igniter,
3 2) the cable delivers electrical power to the igniter,
4 3) an external conductive shield surrounds the cable and
5 is connected to the engine,
6 4) the cable connects to the igniter at a contact point,
7 and a second conductive shield extends from the contact
8 point along the igniter, and
9 5) the sensor is wholly external to both conductive
10 shields.

1 8. Method according to claim 1, wherein the sensor comprises
2 an inductive pick-up.

1 9. Method according to claim 1, wherein the sensor comprises
2 a coil, and part of the igniter forms a core of the coil.

1 10. Method according to claim 7, wherein the second
2 conductive shield comprises a housing of the igniter.

1 11 ~~12~~. A method of detecting spark, comprising:
2 a) using a power source to apply a high voltage to a
3 supply conductor connected to a spark gap, to cause
4 dielectric breakdown in the spark gap;
5 b) when dielectric breakdown occurs, carrying some
6 return current from the spark gap along a path to the

7 power source;
8 c) maintaining a conductive shield around the supply
9 conductor; and
10 d) detecting current in the conductive shield, and
11 issuing a signal indicating presence of spark in
12 response.

1 ¹²/~~13~~. Method according to claim ¹¹/~~12~~, wherein the path leads to
2 a system ground.

1 ¹³/~~14~~. Method according to claim ¹²/~~13~~, wherein the conductive
2 shield is connected to a system ground.

1 ¹⁴/~~15~~. Method according to claim ¹¹/~~12~~, and further comprising
2 maintaining the spark gap in a gas turbine engine.

1 ¹⁵/~~16~~. Method according to claim 1, wherein the gas turbine
2 produces power, and the sensor output is produced as a result of
3 sparking events.